

مسائل امتحانی

$$a_n = \frac{1}{r} \times r^{n-1} \Rightarrow a_{10} = \frac{1}{r} \times r^9 = r^8 = \boxed{256}$$

(الف 1)

$$\frac{\frac{1}{r} \times r^{10}}{\frac{1}{r} \times r^8} = \frac{r^{10}}{r^8} = r^2 = \boxed{16}$$

(ب)

$$q^2 = \frac{a_{10}}{a_8} = \frac{256}{16} = 16 \Rightarrow q = \pm 4 \Rightarrow r^2 \times (\pm 4) = \boxed{\pm 128}$$

(ج)

$$128 = \frac{1}{r} \times r^{h-1} \Rightarrow 256 = r^1 = r \Rightarrow h = 9$$

(د)

$$\begin{cases} a_1 q^9 = 96 \\ a_1 q^8 = 12 \end{cases} \Rightarrow q = 8 \Rightarrow q = 8 \Rightarrow a_1 \times 8^8 = 12 \Rightarrow a_1 = \frac{12}{8^8} = \frac{3}{2^8} \Rightarrow a_{10} = \frac{3}{2^8} \times 8^9 = \boxed{216}$$

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$$a_1(a_1 q) \dots (a_1 q^9) = a_1^{10} q^{45} = 2^4 \times 3^5 \Rightarrow a_1 q^9 = 2 \Rightarrow a_{10} = 2$$

(الف 3)

$$a_1(a_1 q^8) = a_1^2 q^8 = (a_1 q^4)(a_1 q^4) = \boxed{9}$$

(ب)

$$\frac{r^b}{r^a} = \frac{r^b}{r^a} \Rightarrow r^b = r^{a+b} \Rightarrow a+b=0 \Rightarrow b = -a$$

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$$\frac{a_v}{a_r} = q^8 = \frac{x}{1-x}, \frac{a_{11}}{a_v} = q^8 = \frac{x+1}{x} \Rightarrow \frac{x}{1-x} = \frac{x+1}{x} \Rightarrow x^2 = 1-x^2 \Rightarrow x^2 = \frac{1}{2} \Rightarrow x = \boxed{\pm \frac{1}{\sqrt{2}}}$$

$$\frac{a_7}{q} \times a \times a q^5 \neq v \Rightarrow a^2 = 2v \Rightarrow a_r = 2 \Rightarrow a_1 = 2, a_r = 6, a_{10} = 11$$

$$\frac{2}{9} + 2 + 2q = 12 \Rightarrow q = 2$$

$$r \left(\frac{r^{10}-1}{r-1} \right) = r^{10}-1 = 255$$

(الف 4)

$$\sqrt[2]{(r \times (r^9))^{10}} = \boxed{V1 \quad V5 \quad V2}$$

(ب)

$$(a, q-a), (a, q^2-a, q), \dots$$

$$\frac{a_1 q^2 - a_1 q}{a_1 q - a_1} = \frac{q^2 - q}{q - 1} = \boxed{q}$$

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